


**Probability** - is the chance or possibility that a specific event will occur.

For example, if you flip a coin, it will come up either heads or tails. What are the chances that it will come up heads? Well, since there are 2 sides to a coin (heads and tails), there is one chance out of two that the coin will come up heads. We can state this probability as a fraction (1/2) or as a percent (50%) or even as a ratio (50:50).


**Activity:** Try this yourself. Flip a coin 10 times, keeping track of how many heads and tails you get. Make sure they add up to 10. How close did you get to a 50% chance of heads (5/10) and a 50% chance of tails (5/10)? Now try it again with 50 tosses of the coin. Keep track again of the number of heads and tails. Are you closer to a 50:50 ratio of heads:tails? Try it one more time with 100 tosses. How does your ratio look now?

With a larger sample size, we get closer to the most accurate probability. Each individual toss is a separate entity and is not influenced by any earlier tosses.

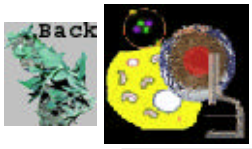
Another example - What are the chances that a baby will be born a male? Since there are 2 sexes (male and female), there is a one chance out of two that the child will be a male. What are the chances that a baby will be born a female?

Does this sound anything like the coin toss? Each baby has a 50:50 chance of being either a male or a female. It doesn't matter how many other brothers or sisters are already in the family. Each baby is a separate entity and its sex is not influenced by the sexes of earlier children. You can try this either by tossing a coin with the head side representing a girl and the tail side representing a boy.

Another way to predict is to do a Punnett square showing a cross between a male (XY) and a female (XX). What are your results? Does the Punnett square show that in a family of 4 children, 2 will be male and 2 will be female? Or is it showing that each child has a 50:50 chance of being male or female?

Think about it! If a family already has 5 girls, what are the chances that the next baby will be a boy?

We use probabilities to predict possible results of genetic crosses. Punnett squares are an easy way to determine the probabilities of certain types of offspring occurring from a specific cross.
The genotypes and phenotypes of parents or offspring may also be written as like other probabilities as: fractions, decimals, or ratios.

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